

0023-1785-3

"RESPONSE UNDER 37 CFR 1.116-
EXPEDITED PROCEDURE EXAMINING
GROUP 1725"

#26 8/5/03
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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :
TATSUYA TANAKA ET AL. : EXAMINER: TRAN, L.
SERIAL NO: 09/550,331 :
RCE FILED: NOVEMBER 8, 2002 : GROUP ART UNIT: 1725
FOR: METHOD AND APPARATUS FOR INJECTION MOLDING LIGHT
METAL ALLOY

REQUEST FOR RECONSIDERATION

COMMISSIONER FOR PATENTS
ALEXANDRIA, VA 22313

SIR:

In response to the Office Action dated May 20, 2003, Applicants request the reconsideration of the Final Rejection, for the reasons set forth below.

Claims 2-4 and 6-31 stand finally rejected. Of these, Claims 2, 3, 4, 7-9, 16, 17, 21-23, 24 and 25-31 stand rejected under 35 U.S.C. § 103 as being obvious over JP '874 in view of the U.S. patent to Wang '266 and further in view of the U.S. patent to Kono '372. However, this rejection is respectfully traversed since no combination of the cited references teaches or suggests the claimed combination including nozzle discharge port opening/closing means for opening or closing a discharge port of the nozzle, or a step of injecting the slurry "of a predetermined amount" from the discharge end of a channel extending in a horizontal direction.

As has been previously explained, the invention is directed to the injection molding of a light metal alloy in which the alloy is injected into the mold in the form of a semi-solidified slurry. Claim 25 recites a number of elements, one of which is "nozzle discharge port

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opening/closing means for opening or closing a discharge port of said nozzle", wherein the "nozzle" is defined in the claim as being "connected at the discharge end of said connection member", which connection member has "a second internal channel extending horizontally from the lower end of the [vertical] first channel." Claim 25 thus recites the nozzle discharge port opening/closing means as being provided for a nozzle connected at the horizontal discharge end of the connection member. For example, as is described at the middle of page 13 in the specification, the nozzle 18 is closed, except for the injection step, by means such as a spring-type shut off valve. While the cited prior art has a number of deficiencies with respect to the subject matter of Claim 25, **it most glaringly fails to teach or suggest a nozzle discharge port opening/closing means at a nozzle connected at the discharge end of a connection member having both vertical and horizontal channels.**

The Examiner has not alleged that JP '874 discloses a nozzle discharge port opening/closing means. Indeed, no such opening/closing means is taught or suggested by JP '874. The downstream end of the horizontal passage, leading to the die, is instead open.

Wang et al was cited to teach a screw which is vertically structured and linearly moved in order to discharge molten metal into a casting mold. It does not disclose a connection member having a horizontal channel, and so can provide no teaching or suggestion for an opening/closing means for a nozzle connected at a discharge end of a connection member having a horizontally extending channel.

Rather, the Examiner has relied on Kono to disclose "a ball valve (60) to thereby close off fluid communication between the barrel (30) and the accumulation chamber (50)." It is evidently the Examiner's position that it would have been obvious in view of Kono to

provide a nozzle discharge port opening/closing means in JP '874, at the location recited in

Claim 25. However, Kono provides no such teaching.

Kono is similar to JP '874 in several respects. Both include a horizontal channel from which a metal alloy product is discharged via a piston (piston "C" in JP '875; piston 45 in Kono). Also, in both cases, the alloy product is fed to the horizontal discharge passage from a non-horizontal chamber 30 containing a feed screw (screw d3 in JP '874; screw 34 in Kono). Kono, moreover, has a discharge port 57 at the exit of the horizontal accumulation chamber 50, and has a valve 60 at the joint connecting the non-horizontal chamber 30 with the horizontal accumulation chamber 50. **However, Kono lacks any disclosure of a valve at the discharge port 57 located at the discharge end of the horizontal accumulation chamber 50.** Thus, to the extent that Kono can provide a teaching for modifying JP '874, it would teach those skilled in the art that an opening/closing means should be provided at the joint between a non-horizontal chamber having an extrusion screw and a horizontal accumulation chamber from which the material may be ejected via a piston. Thus, those skilled in the art would be taught to provide a valve between the vertical chamber having the extrusion screw in JP '874 and the horizontal chamber having the piston C, but would also be taught that there should be no opening/closing means at the nozzle discharge port at the discharge end of the horizontal chamber.

In summary, while the Examiner is correct that Kono discloses a ball valve 60, the ball valve 60 is not at a location analogous to that recited in the claims, and so Kono could provide no teaching for the nozzle discharge port opening/closing means of Claim 25.

Claim 28 and 31 similarly recite "nozzle discharge port opening/closing means" for opening or closing a discharge port of a nozzle connected at a discharge end of a connection

member having a second horizontally extending internal channel. Claims 28 and 31 therefore also define over any combination of the above references for the reasons set forth above.

Method Claim 24 recites the steps of "filling an internal channel of the horizontal direction with the semi-solidified slurry" and "injecting the turned semi-solidified slurry *of a predetermined amount* . . . from the discharge end of the second internal channel of the horizontal direction." Since no combination of the cited prior art teaches or suggests a nozzle discharge port opening/closing means, as discussed above, the cited prior art could not teach or suggest injecting slurry "of a predetermined amount" from the end of the internal channel of the horizontal direction. Instead, lacking a nozzle discharge port opening/closing means, the prior art could not "predetermine" the amount of slurry discharged from the horizontal channel. Claim 24 therefore also defines over any combination of the cited art.

Applicants therefore believe that the present application is in a condition for allowance and respectfully solicit an early Notice of Allowability.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
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A handwritten signature in black ink, appearing to read 'Norman F. Oblon'.

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"RESPONSE UNDER 37 CFR 1.116-
EXPEDITED PROCEDURE EXAMINING
GROUP 1725"

Docket No: 0023-1785-3

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

RE: Application Serial No: 09/550,331
Applicants: Tatsuya TANAKA, et al.
RCE Filed: November 8, 2002
For: METHOD AND APPARATUS FOR INJECTION
MOLDING LIGHT METAL ALLOY
Group Art Unit: 1725
Examiner: TRAN, Len

SIR:

Attached hereto for filing are the following papers:

REQUEST FOR RECONSIDERATION

Our check in the amount of _____ is attached covering any required fees. In the event any variance exists between the amount enclosed and the Patent Office charges for filing the above-noted documents, including any fees required under 37 C.F.R. 1.136 for any necessary Extension of Time to make the filing of the attached documents timely, please charge or credit the difference to our Deposit Account No. 15-0030. Further, if these papers are not considered timely filed, then a petition is hereby made under 37 C.F.R. 1.136 for the necessary extension of time. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

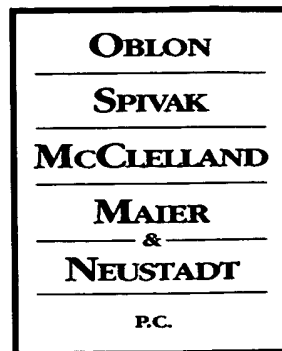


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In the matter of the Application of: Tatsuya TANAKA, et al.

For: METHOD AND APPARATUS FOR INJECTION MOLDING LIGHT METAL ALLOY

Due Date: August 20, 2003

The following has been received in the U.S. Patent Office on the date stamped hereon:

- ☒ Dep. Acct. Order Form
- ☒ Letter / Cover
- ☒ Request for Reconsideration

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